

Additions and corrections to the check list of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico IV

B. Christian Schmidt¹, J. Donald Lafontaine¹, James T. Troubridge²

¹ Canadian National Collection of Insects, Arachnids, and Nematodes, Biodiversity Program, Agriculture and Agri-Food Canada, K.W. Neatby Bldg., 960 Carling Ave., Ottawa, Ontario, Canada K1A 0C6 ² Hagersville, Ontario, Canada

Corresponding authors: B.C. Schmidt (Christian.Schmidt@agr.gc.ca); J.D. Lafontaine (Don.Lafontaine@agr.gc.ca)

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Abstract

A summary of all taxonomic and nomenclatural changes to the check list of the Noctuoidea of North America north of Mexico since the last update published in 2015 is provided. A total of 64 changes are listed and discussed, consisting of 26 recently published changes and additions, and an additional 38 presented herein. One stat. n., one stat. rev., six syn. n., and two comb. n. are proposed for the first time. *Orthimella* Schmidt & Lafontaine nom. n. is proposed here as an objective replacement name for *Himella* Grote, 1874 [Noctuinae: Orthosiini], a junior homonym of *Himella* Dallas, 1852 [Hemiptera: Coreidae].

Keywords

Canada, United States, Erebidae, Noctuidae, Nolidae

Introduction

Continuing work on the taxonomy and systematics of New World Noctuoidea has resulted in 64 additional changes to the check list of North American Noctuoidea (Lafontaine and Schmidt 2010). In terms of the North American fauna diversity, the

current work summarizes changes with 43 species-level taxa added and nine deleted for a net gain of 34. These are in addition to the 115 changes made in 2011 (Lafontaine and Schmidt 2011), and 64 made in 2013 (Lafontaine and Schmidt 2013), and the 124 made in 2015 (Lafontaine and Schmidt 2015). The new total for Noctuoidea in North America north of Mexico is 3706 species.

Repository abbreviations

Taxonomic changes are based on examination of material, especially type specimens, in the following collections:

AMNH	The American Museum of Natural History, New York, NY, USA
ANSP	The Academy of Natural Sciences, Philadelphia, Pennsylvania, USA
NHMUK	The Natural History Museum, London, UK
CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario, Canada
CUIC	Cornell University Insect Collection, Ithaca, New York, USA
KBC	Knudson/Bordelon Collection at MCLB—McGuire Center for Lepidoptera and Biodiversity, University of Florida, Gainesville, FL, USA
MNHN	Muséum National d’ Histoire Naturelle, Paris, France
MSU	Michigan State University, East Lansing, Michigan, USA
TLSRC	Texas Lepidoptera Survey Research Collection, Houston, Texas, USA
JTTC	James T. Troubridge Collection, Hagersville, Ontario, Canada
USNM	National Museum of Natural History [formerly, United States National Museum], Washington, District of Columbia, USA

Results

Corrections, additions, and changes (highlighted in bold)

930207.1 *Hypoprepia lampyroides* Palting & Ferguson, 2018

930215.1 *Clemensia umbrata* Packard, 1872

930216 *Clemensia ochracea* Schmidt & Sullivan, 2018

(= *Clemensia patella* of authors)

930233 – 930238 *Chelis* Rambur, 1866

(= *Holoarctia*, *Neoarctia*, *Hyperborea*)

930239 – 930277 *Apantesis*

(= *Holarctia*, *Grammia*, *Notarctia*)

930283 – 930289 *Arctia*

(= *Parasemia*, *Acerbia*, *Pararctia*, *Platarctia*, *Platyprepia*)

930299.1 *Virbia marginata* (Druce, 1885)

930409.1 *Euchaetes nancyae* Nagle & Schmidt, 2018
930468.1 *Nyridela xanthocera* (Walker, 1856)
930541.1 *Thursania lycimnia* (Druce, 1891)
930589.1 *Hypena opulenta* (Christoph, 1877)
930714.1 *Glympis holothermes* Hampson, 1926
930723.1 *Nychioptera basipallida* Barnes & McDunnough, 1916
930730 *Hyperstrotia villificans* (Barnes & McDunnough, 1918)
930822.1 *Catocala ventura* Borth & Kons, 2016
930829.1 *Catocala slotteni* Kons & Borth, 2016
930834.1 *Catocala bastropi* Kons & Borth, 2017
930887.1 *Bulia mexicana* (Behr, 1870)
930913 *Drasteria howlandii* (Grote, 1865)
 syn. *D. tejonica* (Behr, 1870)
930968.11 *Mimophisma forbesi* Schaus, 1940
930969.1 *Tyrissa recurva* Walker, 1866
931000.1 *Toxonprucha scitior* (Walker, 1865)
931019 *Zale strigimacula* (Guenée, 1852)
931020 Delete *Zale obsita* (Guenée, 1852)
931071.1 *Eulepidotis merricki* (Holland, 1902)
931143 *Nycteola columbiana* (H. Edwards, [1874])
931273 Delete *Cobubatha ochrocraspis* Hampson, 1910
931278 Delete *Cobubatha hippotes* (Druce, 1889)
931290 *Protodeltote* Ueda, 1984
931540.1 *Dolocucullia poolei* Crabo & Hammond, 2018
931659.1 *Plagiomimicus yakama* Crabo & Wikle, 2018
 ssp. *P. y. yakama* Crabo & Wikle, 2018
 ssp. *P. y. mojave* Wikle & Crabo, 2018
931719 *Neogrotella mcdunnoughi* Barnes & Benjamin, 1922
 syn. *N. macdunnoughi*, misspelling
931815.1 *Sympistis eleaner* Adams, 2018
931821.1 *Sympistis tenuistriga* (McDunnough, 1940)
931927.1 *Sympistis ferrirena* Crabo, 2018
931970.1 *Neotuerta collectiora* Todd, 1966
932029.1 *Diastema chuza* (Druce, 1898)
932045.1 *Helicoverpa armigera* (Hübner, [1808])
932130.1 *Schinia amblys* (Dyar, 1913)
932139 *Schinia volupia* (Fitch, 1868)
 syn. *S. masoni* (Smith, 1896)
932225.1 *Elaphria hypophaea* (Hampson, 1920)
932587 *Eupsilia vinulenta* (Grote, 1864)
 syn. *E. walkeri* (Grote, 1864)
932588.1 *Eupsilia colorado* (Smith, 1903)
932588.2 *Eupsilia schweitzeri* Lavitt & Wagner, 2016

932606.1 *Chaetaglaea rhonda* Stead & Troubridge, 2016

932615.1 *Omphaloscelis lunosa* (Haworth, [1809])

932643 *Aseptis susquesa* (Smith, 1908)

syn. *A. monica* (Barnes & McDunnough 1918)

932645.1 *Aseptis harpi* Crabo & Mustelin, 2018

932656 *Stretchia plusiaeformis* H. Edwards, 1874

syn. *S. plusiiformis*, misspelling

932781 *Orthosia tenuimacula* (Barnes & McDunnough, 1913)

syn. *O. mediomacula* Barnes & McDunnough, 1924

syn. *O. nongenerica* Barnes & McDunnough, 1924

932806 move to 2924.50

932807 move to 2924.52

932785 *Orthimella fidelis* (Grote, 1874) comb. n.

932924.50 *Admetovis oxymorus* Grote, 1873 moved from 932806

932924.51 *Admetovis icarus* Crabo & Schmidt, 2018

932924.52 *Admetovis similaris* Barnes, 1904 moved from 932807

932937.1 *Leucania clarescens* Möschler, 1890

932953.1 *Leucania oregonia* Smith, 1902

932953.2 *Leucania chejela* (Schaus, 1921)

932955.1 *Leucania rawlinsi* Adams, 2001

932961.1 *Leucania latiuscula* Herrich-Schäffer, 1868

933115.1 *Rhabdorthodes pattersoni* Crabo, 2018

933181.1 *Hypotrix lactomellis* Wikle & Crabo, 2018

933207 *Hydroeciodes serrata* (Grote, 1880)

syn. *H. ochrimacula* (Barnes & McDunnough, 1913)

933663.1 *Abagrotis benjamini* Franclemont, 1955

Notes

93027.1 *Hypoprepia lampyroides* – This species is described in the current volume by Palting et al. (2018).

930215.1 *Clemensia umbrata* – This species is raised from synonymy by Schmidt and Sullivan (2018).

930216 *Clemensia ochracea* – This species is described in the current volume by Schmidt and Sullivan (2018).

930233 – 930238 *Chelis* – The genera *Holoarctia*, *Neoarctia*, and *Hyperborea* were subsumed under *Chelis* by Rönkä et al. (2016).

930239 – 930277 *Apantesis* – The genera *Holarctia*, *Grammia*, and *Notarctia* were subsumed under *Apantesis* by Rönkä et al. (2016).

930283 – 930289 *Arctia* – The genera *Parasemia*, *Acerbia*, *Pararctia*, *Platarctia*, and *Platyprepia* were subsumed under *Arctia* by Rönkä et al. (2016).

930299.1 *Virbia marginata* – the *Virbia* taxon from southernmost Texas previously thought to be *V. aurantiaca* is in fact more closely related to *V. marginata* (described from Guatemala) based on phenotype and DNA barcode, and this species is accordingly added to the North American fauna. The western species treated as *V. marginata* by Zaspel et al. (2008) is a separate, undescribed species maintained as *Virbia* near *marginata*, as per Lafontaine and Schmidt (2010).

930409.1 *Euchaetes nancyae* – This species is described in the current volume by Nagle and Schmidt (2018).

930468.1 *Nyridela xanthocera* – reported and photographed in southern Texas in 2017 (Krancevic 2018).

930541.1 *Thursania lycimnia* – Several specimens of this Mexican species were collected in southern Texas in 2015 by Ed Knudson. Vouchers are in KBC.

930589.1 *Hypena opulenta* – this species was approved for release in eastern Canada and is pending approval in the United States of America as a biological control agent of the invasive European swallow-worts (*Vincetoxicum* spp.). It has become established at several locations in eastern Ontario since 2016 (R. Bourchier, pers. comm.).

930714.1 *Glympis holothermes* – This species was found at Crocodile Lake National Wildlife Refuge in the Florida Keys by David Fine in 2009.

930723.1 *Nychoptera basipallida* – This species was described in the genus *Oxycilla* Grote by Barnes and McDunnough (1916) and has remained there until now. The barcode results suggested the species belonged in the genus *Nychoptera* Franclemont in the Boletobiinae and not in *Oxycilla* in the Rivulinae and examination of the male genital characters confirmed the new placement as *Nychoptera basipallida* (Barnes & McDunnough, 1916), **comb. n.**

930730 *Hyperstrotia villifcans* – This species was synonymized with *H. nana* (Hübner, 1818) by Lafontaine and Schmidt (2015). New barcode data has shown there are two similar species going under the name *H. nana*. Specimens of the more southern of the two species, with a range extending from Pennsylvania and Illinois southward to Florida, closely match the holotype of *H. villifcans*. We therefore re-instate the name *Hyperstrotia villifcans*, **stat. rev.** for this taxon. The type specimen for *H. nana*, like those of most names published by Hübner, is lost or destroyed, but the rather schematic painting in Hübner (1818: 14, figs 53, 54) more closely resembles the more widespread species that occurs from southern Canada to Florida, so we apply the name *H. nana* to this species. A neotype should be selected for *H. nana* when the genus *Hyperstrotia* Hampson is revised.

930822.1 *Catocala ventura* – Described as being a new species similar to but distinct in appearance and barcodes from *Catocala californiensis* Brower and *C. johnsoniana* Brower (Borth and Kons 2016).

930829.1 *Catocala slotteni* – Described from the Florida Panhandle as a southern relict species related to *Catocala whitneyi* Dodge from the northern prairies. Both species are associated with leadplant (*Amorpha* L., Fabaceae) (Kons and Borth 2016).

930834.1 *Catocala bastropi* – Described from western Louisiana and eastern Texas, this new species occurs west of the known range of *Catocala louiseae* Bauer, which occurs as far west as Alabama (Kons and Borth 2017).

930887.1 *Bulia mexicana* – Recently discovered to occur in southern Texas. One of the two vouchers in KBC has been barcoded.

930913 *Drasteria howlandii* – Typical *Drasteria howlandii* is a species of the Great Plains and western mountainous areas and is replaced farther south by a paler desert form in which females look like typical *D. howlandii* but males have more white in the hind wing. Richards (1939) treated them as separate species because their range only overlapped slightly, but he also pointed out that there were many exceptions to the “species” characters with wrong “forms” showing up in each other’s territory and suggested the two “species” hybridize where their ranges meet. The barcodes also do not match either distribution or color forms, and unlike other closely-related *Drasteria*, barcode variation is also very low; we therefore treat *D. tejonica* (Behr, 1870), **syn. n.** as a geographic form of *D. howlandii*.

930968.11 *Mimophisma forbesi* – This species was previously known only from Puerto Rico, but found in the Florida Keys by Jim Troubridge in 2013. The specimen has been barcoded.

930969.1 *Tyrissa recurva* – Specimens were collected at the National Key Deer Refuge in the Florida Keys by David Fine and Jim Troubridge.

931000.1 *Toxonprucha scitior* – This species was described from northwestern Guatemala but is now known to occur through Mexico and into the Hill Country of Texas. Vouchers are in the collection of Hugo Kons Jr., Florida, and the Biodiversity Institute of Ontario, University of Guelph, Ontario.

931019 *Zale strigimacula* – The identity of this species has been a mystery for many years. It had been reported from Florida, but specimens from Florida identified as *Z. strigimacula* and those identified as *Z. viridans* (Guenée, 1852) were found to represent a single undescribed species unknown from the Neotropics or elsewhere in the Caribbean, so both species were removed from the check list of Canada and United States (Lafontaine and Schmidt 2010) in a recent list update (Lafontaine and Schmidt (2015). Unfortunately, the abdomen of the male lectotype borrowed from MNHP by J. G. Franclemont for dissection has been lost. However, Neotropical specimens in USNM dissected and identified as *Zale strigimacula*, and presumably compared to the dissection of the lectotype, give a clue to the identity of this species. The species occurs from Brazil northward into southern Texas and is therefore placed back on the North American checklist; this species is, however, not known to occur in Florida. At least one additional species belonging to the *Z. strigimacula* complex is known from Texas.

931020 *Zale obsita* – As with *Zale strigimacula* above, there has been much confusion as to the correct identity of this species. Specimens identified as *Zale obsita* from Florida are now reidentified as the same undescribed species discussed under *Z. strigimacula*, so this particular species has been the basis for the incorrect reports of *Zale strigimacula*, *Z. obsita*, and *Z. viridans* from Florida. The female genitalia

of the *obsita* type in the NHMUK is unique in having a single elongated lobe to the corpus bursae, unlike the figure 8-shaped bursa of species in the *Z. strigimacula* complex. Alberto Zilli pointed out that the genitalia of specimens from the Galapagos Islands and treated as *Z. obsita* by Hayes (1973) were good matches for the type specimen from Brazil. Dissection and barcoding of specimens from the Galapagos in the CNC confirms this identification and show that *Z. obsita* is known from Brazil, Ecuador, Venezuela, Costa Rica, and Guatemala, but not from farther north.

931071.1 *Eulepidotis merricki* – Specimens were collected at the National Key Deer Refuge in the Florida Keys by Jim Troubridge and David Fine. A specimen has been barcoded.

931143 *Nycteola columbiana* – This species was described in the Proceedings of the California Academy of Sciences, volume 5, 1873, with internal dates through the volume indicating the various fascicles within it were printed in various months of 1873. However, Poole (1989: 1039) and Nye (1975: 410 [under *Pseudalypia*]) give 1874 as the year of publication for this volume. The year used by Nye is based on the postal cancellation date in the library of NHMUK – the library being one of the few that save the postal wrappers. So the date is corrected here to 1874. There being no internal evidence of the Edwards paper being published in 1874, the corrected year is in brackets. Contributed by Lars Crabo.

931273 *Cobubatha ochrocraspis* – This species was added to the North American list (Lafontaine and Schmidt 2010) on the basis of specimens identified as *Cobubatha ochrocraspis* in USNM that closely resemble *Cobubatha metaspilaris* Walker, 1863 from Florida and the Caribbean. Examination of the holotype in the NHMUK shows that the specimens in USNM were incorrectly associated with this name and are *Cobubatha metaspilaris*, which is now known to occur in the United States in Florida, Texas, and Arizona. The holotype of *Cobubatha ochrocraspis* belongs in the genus *Tripudia* Grote, as Poole (1989) correctly determined. *Tripudia ochrocraspis* comb. rev. occurs from Jalapa in southern Mexico to Costa Rica.

931278 *Cobubatha hippotes* – This species was described from Guatemala in 1889. It was reported as *C. hippotes* in the Noctuidae MONA check list (Franclemont and Todd 1983), but the species recorded in Texas is now known to be an undescribed species related to *C. hippotes*.

931290 *Protodeltote* – Both *Protodeltote* and *Deltote* were recognized as valid genera in Lafontaine and Schmidt (2010) following the revision by Ueda (1984), but at the time we were unaware that *Protodeltote* had recently been subsumed within *Deltote* as a subgenus by Fibiger et al. (2009). Despite the apparent similarity between the two genera, phylogenetic analysis shows that the two are in fact not closely related (BCS, unpubl. data), and we therefore re-instate *Protodeltote* stat. rev. as a valid genus as proposed by Ueda (1984).

931540.1 *Dolocucullia poolei* – This species is described in the current volume by Crabo et al. (2018).

931659.1 *Plagiomimicus yakama* – This species, with two constituent subspecies, is described in the current volume by Crabo et al. (2018).

931719 *Neogrotella mcdunnoughi* – The species name was misspelled as *macdunnoughi* following the spelling in Franclemont and Todd (1983). Contributed by Greg Pohl & Steve Nanz.

931815.1 *Sympistis eleaner* – This taxon is described in Adams and Schmidt (2018) in the current volume.

931821.1 *Sympistis tenuistriga* – *Sympistis badistriga* var. *tenuistriga* (McDunnough, 1940) was first treated as a valid species in Pohl et al. (2018) based on genital and barcode differences.

931927.1 *Sympistis ferrirena* – This species is described in the current volume by Crabo et al. (2018).

931970.1 *Neotuerta collectiora* – This taxon was described as a Cuban subspecies of *Neotuerta sabulosa* (Felder, 1874), a species mainly occurring in Central and South America and the Caribbean as far north as Puerto Rico. Research by Jim Troubridge indicates the Cuban taxon should be raised to species status as *Neotuerta collectiora* Todd, 1966, **stat. n.** It was collected at Crocodile Lake National Wildlife Refuge in the Florida Keys in 2016 by David Fine.

932029.1 *Diastema chuza* – *Diastema chuza* (Druce, 1898), **comb. n.** was included in the genus *Eustrotia* Hübner by Hampson (1910) and Poole (1989), but the barcodes and genitalia associate it with the genus *Diastema* Guenée. It has been found in Texas in Starr County.

932045.1 *Helicoverpa armigera* – The Old World Bollworm, a significant pest species native to the eastern hemisphere, is now also established in South America. This species was detected in Florida (Manatee County: Bradenton) in 2015, but appears not to have become established (USDA 2017). This species has the potential to become an agricultural pest in North America (USDA 2017).

932130.1 *Schinia amblys* – This mainly Mexican species has recently been found in southeastern Arizona (D. Wikle pers. comm.).

932139 *Schinia volupia* – Synonymy with *Schinia masoni* from Pogue et al. 2013.

932225.1 *Elaphria hypophaea* – Specimens of *Elaphria fuscimacula* (Grote, 1881) from southern Texas southward have been re-identified by JDL as the central and northern South American species *Elaphria hypophaea* on the basis of barcodes and differences in the male genitalia. *Elaphria fuscimacula* is a complex of three species that occur from Florida and North Carolina to central Texas. The type locality of *Monodes fuscimacula* Grote is Tallahassee, Florida.

932587 *Eupsilia vinulenta* – The name *Eupsilia walkeri* (Grote, 1864) was transferred from the synonymy of *Eupsilia sidus* (Guenée, 1852) to the synonymy of *Eupsilia vinulenta* (Grote, 1864) by Lavitt and Wagner (2016).

932588.1 *Eupsilia colorado* – This name was previously treated as a synonym of *Eupsilia sidus* (Guenée, 1852), but was raised to the status of a valid species by Lavitt and Wagner (2016). It occurs in southwestern Colorado, highly isolated from populations of *Eupsilia sidus* in eastern United States.

932588.2 *Eupsilia schweitzeri* – This new species was initially distinguished from *E. sidus* by barcode and larval differences, but also differs in details of the male genitalia (Lavitt and Wagner 2016).

932606.1 *Chaetaglaea rhonda* – This recently described species (Stead and Troubridge 2016) refers to populations from the Carolinas northward to southern Ontario previously identified as *Chaetaglaea tremula*.

932615.1 *Omphaloscelis lunosa* – A European introduction first reported from North America at Potomac, Maryland, 7 October 2015, by Tomas Mustelin.

932643 *Aseptis susquesa* – The synonymy of *Aseptis monica* and *A. susquesa* by Mustelin and Crabo 2015 was inadvertently missed in Lafontaine and Schmidt 2015.

932645.1 *Aseptis harpi* – This species is described in the current volume by Crabo et al. (2018).

932656 *Stretchia plusiaeformis* – The species name *plusiaeformis* was incorrectly updated to *plusiiformis* by Lafontaine and Schmidt (2015) following Poole (1989). The correct original spelling is *plusiaeformis*. Contributed by Greg Pohl & Steve Nanz.

932781 *Orthosia tenuimacula* – Barcodes and dissections confirm that *O. mediomacula* Barnes & McDunnough, 1924, **syn. n.** and *O. nongenerica* Barnes & McDunnough, 1924, **syn. n.** are color forms of *Orthosia tenuimacula*.

932785 *Orthimella* Schmidt & Lafontaine, nom. n. is proposed here as an objective replacement name for *Himella* Grote, 1874 [Noctuinae: Orthosiini, type species *Himella fidelis* Grote, 1874], a junior homonym of *Himella* Dallas 1852 [Hemiptera: Coreidae], a valid genus of neotropical coreids. This action results in the following new combination: *Orthimella fidelis* (Grote, 1874) **comb. n.**

932806 – see entry for 2924.51

932807 – see entry for 2924.51

932924.51 *Admetovis icarus* – This species is described in the current volume by Crabo and Schmidt (2018). The genus *Admetovis* is re-classified as a member of the tribe Hadenini from its previous placement in the Orthosiini, resulting in the re-assignment of checklist numbers from 932806 – 2807.

932937.1 *Leucania clarescens* – This species was described from Puerto Rico. Jim Troubridge collected specimens at Bahia Honda State Park and Crocodile Lake National Wildlife Refuge in the Florida Keys and identification was made by Cliff Ferris from the male genitalia of one these specimens. The other specimen has been barcoded.

932953.1 *Leucania oregonia* – This species was segregated from *Leucania farcta* (Grote, 1881) by Lafontaine and Schmidt (2010) and recognized as a valid species because of significant differences in the genitalia. Barcode results indicate it is closely related to *Leucania imperfecta* Smith, 1894, and the genitalia confirm this association, so we give it a new sequence number to reflect its proper position within *Leucania*.

932953.2 *Leucania chejela* – This Caribbean and Central American species was discovered at Bahia Honda State Park in the Florida Keys by Jim Troubridge in 2013. Specimens have been dissected and barcoded.

932955.1 *Leucania rawlinsi* – This species was described from Jamaica, but extends as far north as Cuba, the Bahamas, and recently was collected at the National Key Deer Refuge in the Florida Keys by Jim Troubridge. The specimen has been barcoded.

932961.1 *Leucania latiuscula* – This species was described from Cuba and was collected at the National Key Deer Refuge in the Florida Keys by Jim Troubridge. A specimen has been barcoded.

933115.1 *Rhabdorthodes pattersoni* – The genus *Rhabdorthodes* and the three constituent species are newly described in the current volume by Crabo (2018).

933181.1 *Hypotrix lactomellis* – This species is described in the current volume by Crabo et al. (2018).

933207 *Hydroeciodes serrata* – *H. ochrimacula*, **syn. rev.** does not differ from *H. serrata* in structural characters or barcodes, so we consider it to be a form of *H. serrata* and treat it as a synonym.

933663.1 *Abagrotis benjamini* – This taxon was described as a “race” of *Abagrotis crumbi*. It was raised to a valid species by Goldstein and Nelson (2017).

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